which he has given the name *enteroclism*. The apparatus for performing enteroclism is extremely simple, and consists of a reservoir furnished with a plug corresponding to a caoutchouc tube with a canula, which is carried into the intestine, and a more or less intense current is set up in the gut according to the height to which the reservoir is carried. Cantani has shown that certain bodies, oil among others, may be made to penetrate not only the large intestine, but even into the small, and so far up that the oil will be vomited. He applies his method not only to strangulations, but also to the dressing of affections of the intestinal mucous membrane; and Dominicis, Paolucci, Pera, Perli, and more recently Muselli, have shown that this method has great advantages. Dujardin-Beaumetz has shown that the Debove tube is the best entero clyseur, as it may be carried high up into the intestine by reason of its suppleness; and by the aid of the siphon the intensity of the current may be varied at will. The tube for this use should have an aperture relatively small, so as to give greater force to the jet. The question of alimentary enemata is now quite definitely determined. Albertoni, Garland, Czerny, and others have shown that the large intestine and its lower extremity have no digestive properties, they can only absorb. It is necessary, therefore, as has been shown by Dujardin-Beaumetz and Chevalier, that the enemata, to be nourishing, should contain peptonized substances, and this is one of the most useful applications of peptones. The peptones now on the market are both solid and liquid; the dry are much to be preferred to the liquid. The enemata should be carried as high as possible into the intestine, by means of the Debove tube or one of the entero clyseurs. The rectum should always be thoroughly washed out before the enema is administered. The composition of the clyster should be about as follows: the yolk of one egg, two dessertspoonfuls of dry peptones, five drops of laudanum; if the peptones be acid, add about gr. vij of bicarbonate of soda. If liquid peptones be used, the quantity should be two tablespoonfuls; and the enemata are given morning and evening. Catillon and Darember have shown that this method of feeding may be continued for a month without irritating the rectum.—*Bull. Générale de Thérapeutique*, Nov. 15, 1884.

The Difference in the Therapeutic Effect of Electric Currents, and the Electro-Diagnostic Exploration of the Visual Field.

In an exhaustive article on this subject, Dr. C. ENGELSKJÖN, of Christiania, draws the following conclusions:—

1. Experiments on patients suffering from vascular neuroses have shown that, in the local application to the skin of the subject, with the use of the electric bath, the two kinds of electric current exercise an inverse effect on the vessels; whilst the faradic current dilates the spasmodically constricted vessels, the galvanic current constricts the actively dilated vessels. In conformity with this difference in action, the faradic current at the same time produces an increased, the galvanic a lowered, temperature. There seems to be no difference as to the action of the two poles of the galvanic battery.

2. The central application of electricity enables one to see, in analogous cases of cutaneous vascular neuroses, a difference in effect between the two kinds of current, so that, in certain given cases, the cure may only be due to one of them, either the faradic or the galvanic.

3. Comparative experiments on patients suffering from hemicrania and other *central* neuroses have also shown that the galvanic current acts contrary to the faradic, from a therapeutic point of view; whilst only one of the currents, the *positive*, produces a cure in a given case, the other (*negative*) aggravates the disease. The difference in the effect of the two currents on the subjective symp-

toms is, in most cases, seen instantly, and is very striking. It is possible to neutralize the effects of one by the other.

4. As in the central neuroses, electricity acts in the same manner as in hemicrania, so that in certain cases the galvanic current alone, and in others the faradic current alone exercises a happy effect; whilst the treatment by the negative current has an injurious action, these neuroses appear, in analogy with hemicrania, to be of a dualistic nature.

5. The neurotic diseases of the ganglia of the great sympathetic, such as stenocardia, cardialgia, etc., behave, as regards electric currents, in the same manner as diseases of the central nervous system.

6. Engelskjön has also seen cases certainly related, by reason of their symptomatology, to diseases accompanied by evident anatomical alterations of the central organs, and which do not behave in the least as neuroses with electric currents, though they are promptly cured by electric treatment.

7. It is more than probable that the peculiar nature of the etiological factors exerts a determining influence on the future form of a particular case, and that consequently the recognition of the etiological relations in a given case enables us to make a choice of the two kinds of currents.

8. The diseased state of the spinal ganglia may act in a reflex manner on the spinal cord, and give rise to spinal symptoms. In the same manner the diseased condition of the cord is, as is well known, capable of exerting a reflex action on the brain, and of causing cerebral symptoms. The progress of the reflex action is always from below upwards. In this connection it was observed that the organ secondarily attacked should almost always be treated by a current different from that used on the organ primarily diseased.

9. Engelskjön treated cerebral symptoms by electrization of the medulla oblongata, one of the electrodes being placed in the nuchal fossa, the other above the larynx. The spinal symptoms may be treated simply by conducting the current across the lower part of the cervical portion of the cord.

10. The well-known increase of the morbid symptoms, caused by a long use of electricity, is due to the effect of the current on the healthy ganglionic cells.

11. Electrization of the brain, the spinal cord, the ganglia, and the skin exerts a powerful influence on the functions of the retina; so much, that in certain given cases, the positive current extends the visual field, and often increases, at the same time, the activity of vision. As these effects may be said to be direct, we may use electricity in exploring the visual field.

12. If one will submit his hands and forearms to the action of warm or cold water for a few minutes, the cold water will be found to produce, in special cases, the same effect on the visual field as the galvanic current, whilst the effect of warm water is the same as that of the induced current.

13. In this general action on the skin, cold and warm water exert, in such cases of a given disease, the same therapeutic effects as the galvanic and the faradic currents employed separately. The effects of cold water are similar to those of galvanism, those of warm water to those of the induction current. If one will only recognize the kind of current suited to a special case, he is in a position to indicate the proper balneo-therapeutic treatment. And conversely, the good or bad effects of cold or warm water will serve to indicate the proper electric treatment.

14. There are cases of nervous disease which, though generally amenable to electric treatment, can only be cured by central electrization, and grow worse under the influence of one or the other of the two kinds of currents. It is sometimes possible to cure certain cases in another manner, by electrization of the skin. Used in this way, electricity seems to act in two different ways: 1, by

acting on the skin itself; 2, by acting on the peripheral nerves. The two kinds of currents act inversely in the first case, though not in the second.

15. In using the two kinds of currents on the peripheral nervous circuits in cases of neuralgia, Engelskjön has never seen any qualitative difference in their therapeutic activity.—*Nordiskt Medicinskt Arkiv*, Bd. xvi., Hft. 4.

Double or Bipolar Uterine Faradization.

In *L'Union Médicale* for October 28 and November 1, 1884, Dr. G. APOSTOLI has an article on this subject, the first portion of his article being mainly concerned with his theories as to the value and applicability of bipolar faradization of the uterus, the following being a summary of the reasons why it is preferable to the unipolar method: (1) The cutaneous pole is suppressed, and the uterus gets the full benefit of the whole electric current. (2) The operation is much more easily performed, requiring no assistant. (3) The pain is lessened by the removal of all electric influence from the cutaneous surface. (4) Generalization is more easy by this method, by reason of the ease with which it is carried out, and hence the execution is more complete. (5) It is by far more efficacious, possibly on account of the increase of the uterine contractility and the use of a stronger current, more intense and more active; is therefore much easier and less harmful.[1]

Clinical experience has fully justified the theoretical claims for this method. Patients upon whom both methods have been used much prefer the bipolar application; and, contrary to what is seen with the unipolar method, the pain is of little moment, and it actually appears to be beneficial in cases of metritis.

The difference between the contraction of smooth and striated muscular fibres is well known; one is active and immediate, the other often slow and sluggish. The contractions of the non-gravid uterus have given rise to much discussion and contradiction. The variability of the contraction from the point of view of time and intensity is indisputable; in one woman several minutes may elapse before it occurs, in another it takes place almost immediately. The same difference is seen as regards force and intensity. This is a clinical fact. Experiments on animals have demonstrated another important fact, that this contraction rarely takes place *en masse* in striated muscular fibres; it takes place progressively, being first localized at the point of application of the electricity, and then radiates more or less rapidly, according to the intensity of the current, through the whole organ. Can we not conclude, from this fact, that in the woman an increase in the number of points of application will increase the action of the electric current, and that by placing both poles in the uterus the maximum action will be obtained from any given current? Clinical experience also justifies this conclusion as regards the human subject; the procedure is less painful and more active.

As regards the pain, it should be noted there is a marked difference in electric sensibility between the body and cervix of the uterus; a fact not hitherto pointed out. The cervix is by far the more sensitive of the two portions; and to obtain the minimum amount of pain with the maximum effect, the electric sound should be carried completely into the cavity of the uterus. In this way the intensity of the current may be twice as great as by the unipolar method. In Tripier's procedure (the unipolar) the medium quantity of faradization is the induction obtained by the sheathing of half the bobbin of his apparatus. A woman will very rarely support the maximum, and here we must understand always the maximum of the bobbin with a large short thread or the *quantity current*, the

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[1] Cuts of the instrument may be seen in *L'Union Médicale*, No. 153, Oct. 28, 1884.